UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,270	11/13/2003	Mitsuru Ikeda	1538.1042	5657

21171 7590 09/30/2005		EXAMINER
STAAS & HALSEY LLP		RODRIGUEZ, PAUL L

ART UNIT	PAPER NUMBER
2125	

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DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/706,270	IKEDA ET AL.
	Examiner	Art Unit	
	Paul L. Rodriguez	2125	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 July 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-14</u> is/are rejected.

7)☒ Claim(s) <u>15</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/25/05</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   The amendment filed 7/25/05 has been received and considered. Claims 1-15 are

presented for examination.

Information Disclosure Statement

2.   The IDS filed 7/25/05 has been received. Examiner would like to comment that the IDS

submitted contained a PTO-1449 and ATTACHMENT 1(g), which appears to be similar in form

to a PTO-1449. Examiner would like to bring to applicant's attention that the PTO-1449 did not

list any documents, therefore the Examiner has lined through the empty spaces on the PTO-1449,

signed the bottom and is returning the signed 1449 with this office action. ATTACHMENT 1(g)

listed one non-patent document, which the Examiner has considered, ATTACHMENT 1(g),

which is similar to a 1449, has been considered by the examiner and an initialed/signed copy is

returned with this office action.

Specification

3.   The disclosure is objected to because of the following informalities:

        Page 8 lines 14-17 contain the text also set forth in the paragraph beginning on page 8

line 22 following the amendment to the specification.

        Page 8 line 22 refers to "NC data generation function 270", previously 206. The

amendment to the specification failed to properly identify the replacement paragraph, therefore

the objection remains.

        Appropriate correction is required.

\Claim Rejections - 35 USC § 112

4.   Claim 1 is objected to because of the following informalities:

Claim 1 lines 5-6 state "...generator that obtains computer-aided design (CAD) model

that is solid model data..." Language is awkward, recommend amending to provide clear

language, for example "...that obtains a computer-aided design (CAD) model..."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6.   Claims 1-10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

7.   Claims 1 is rejected as being indefinite for failing to particularly point out and distinctly

claim the subject matter which applicant regards as the invention. Claim 1 line 3 states

"...apparatus for machining a work, which is an object before machining", it is unclear if the

apparatus or the work is an object.

8.   Claim 2 recites the limitation "said cutting margin" in line 3. There is insufficient

antecedent basis for this limitation in the claim. Previously "cutting margin model generator"

and "cutting margin model", however no previous "cutting margin".

9.   Claim 5 recites the limitation "said storing means" in line 6. There is insufficient

antecedent basis for this limitation in the claim. The claim amendment changed language.

10.   Claims 6 is rejected as being indefinite for failing to particularly point out and distinctly

claim the subject matter which applicant regards as the invention. Claim 6 lines 1-3 states "A...

program...for causing a computer connected to a numerical control (NC) apparatus for

machining a work according to NC data". It is unclear from the claim language if the program is

for connecting to the NC apparatus, if the program is for machining a work, of if the apparatus is

for machining the work.

11.   Claim 7 recites the limitation "said cutting margin" in line 3. There is insufficient

antecedent basis for this limitation in the claim. Previously "generating a cutting margin model"

and "generated cutting margin model", however no previous "cutting margin".

12.   Claim 12 recites the limitation "said cutting margin" in line 3. There is insufficient

antecedent basis for this limitation in the claim. Previously "generating a cutting margin model"

and "generated cutting margin model", however no previous "cutting margin".

Claim Rejections - 35 USC § 102

13.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

14.   Claims 1-4, 6-9 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by

Maeda et al (U.S. Pat 5,796,618). The claimed invention reads on Maeda et al as follows:

Maeda et al discloses a CAM system, program (figure 1, 2) and method (abstract)

comprising an NC apparatus for machining a work according to NC data (reference number 18,

abstract), cutting margin model generating means (reference number 20) for obtaining a CAD

model that is solid model data of a metal mold to be made (reference number 12, col. 72 line 64

– col. 73 line 3) and a measured work geometric model that is geometric model data of said

work, which is obtained by measuring said work to be machined (reference number 11, col. 73

lines 4-21) and generating a cutting margin model that is a difference between said measured

work geometric model and said CAD model (reference number 14, col. 73 lines 10-46, col. 31

line 5 – col. 32 line 53) and NC data generating means for generating NC data based on the

generated cutting margin model (reference number 17, col. 30 lines 20-30), wherein said NC

data generating means generates NC data to machine said work by a predetermined cutting depth

at a portion in which said cutting margin exists (col. 31 line 65 – col. 32 line 11) and NC data to

cause a tool to move without machining at a portion in which said cutting margin does not exist

(considered inherent, the NC data causes the tool to move whether cutting the workpiece or not),

further comprising means for measuring a tool form in a state in which said tool is installed to

said NC apparatus, and generating a tool model, and wherein said NC data generating means

generates said NC data based on both of said cutting margin model and said tool model (figures

32-45, col. 52 line 5 – col. 57 line 28), further comprising means for outputting an instruction so as to move a tool in either of a tool axis direction and a Z-axis direction, to said NC apparatus, according to a tool load state informed from said NC apparatus (col. 55 lines 13-27). Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.

15.   Claims 1-4, 6-9, 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Richey (U.S. Pub 2003/0033041). The claimed invention reads on Richey as follows:

Richey discloses a CAM system (figure 1), program (paragraph 5) and method (paragraph 1) comprising an NC apparatus for machining a work according to NC data (reference number 22), cutting margin model generating means (reference number 36) for obtaining a CAD model that is solid model data of a metal mold to be made (reference number 12) and a measured work geometric model that is geometric model data of said work (reference number 40, paragraph 47 "actual model"), which is obtained by measuring said work to be machined (reference number 18, paragraph 45), and generating a cutting margin model that is a difference between said measured work geometric model and said CAD model (paragraph 46-48), and NC data generating means for generating NC data based on the generated cutting margin model (paragraph 45, 48, 51), wherein said NC data generating means generates NC data to machine said work by a predetermined cutting depth at a portion in which said cutting margin exists and NC data to cause a tool to move without machining at a portion in which said cutting margin does not exist (paragraph 40, 61, positioning and optimizing done prior to machining therefore predetermined, also considered to be inherent because the cutting program is

predetermined and the tool will cut at a depth that is predetermined, also the NC data causes the

tool to move, both during cutting and when not cutting), further comprising means for measuring

a tool form in a state in which said tool is installed to said NC apparatus, and generating a tool

model (paragraph 55-57) and wherein said NC data generating means generates said NC data

based on both of said cutting margin model and said tool model (paragraph 61), further

comprising means for outputting an instruction so as to move a tool in either of a tool axis

direction and a Z-axis direction, to said NC apparatus, according to a tool load state informed

from said NC apparatus (paragraph 42, inherent to dynamic control) and further comprising

storing means for storing data informed from said NC apparatus as monitoring data (real time

monitoring, paragraphs 15, 25, 29, 54, 56, 57, 59, 60). Examiner would like to point out that any

reference to specific figures, columns and lines should not be considered limiting in any way, the

entire reference is considered to provide disclosure relating to the claimed invention.

Response to Arguments

16.   Applicant's arguments filed 7/25/05 have been fully considered but they are not

persuasive.

Regarding the specification, applicant replaced the paragraph starting on page 8 line 14

twice. See the above objections.

Regarding the claim objections, deficiencies remain. See above.

Regarding the rejections under 112 2nd paragraph, the amended claim language

introduced indefiniteness into the claims and rejections have been made. Regarding the

rejections of claims 2, 7 and 12, applicant amended lines 4, 4 and 5 respectively instead of line 3

of each, therefore the deficiencies remain for each.

Regarding the rejection under Maeda, applicant argues that the work is "an object before machining". Specific language of that assertion is only found in claim 1 and not claims 6 and 11.

Regarding the assertion that Maeda does not support claims 3, 8 and 13 are not persuasive. As pointed out by the Examiner, figure 32 uses a CCD to image the tool and reference number 42, as described in figure 33 calculates a degree of wear of that tool. This degree of wear is used to model the tool, therefore the argument is not persuasive. Columns 52-57 describe the process of imaging and calculations and correction coefficients used to determine the degree of wear of a specific tool. The Examiner considers this to read on mathematical modeling of the tool.

Regarding claims 4, 9 and 14, applicant argues that Maeda does not teach to move a tool. Examiner would like to direct applicant to col. 5 lines 13-27, where Maeda discusses a motor relating to the operation of the tool. The Examiner considers a motor in physical connection with a tool to clearly disclose moving a tool. This passage also states "a current consumed by the motor 44 when the NC machine uses the tool". The Examiner considers this to be as clear and explicit language in relation to moving a tool, if nothing else the moving a tool should be considered inherent to the disclosure. If a motor is in mechanical connection with a tool and the motor is operated the tool will move, argument not persuasive.

Regarding Richey, applicant argues that Richey teaches a comparison to alter position, not to generate NC data. Examiner points to paragraph 47, where an actual model based upon measurement is created, paragraph 41 provides for the authority model which is considered the solid model data, paragraph 48 provides a comparison of actual models and authority models to optimize an authority model, which the Examiner considers to read on a cutting model, also at block 52, manufacturing index information is imbedded into the 3D CAD model, producing in

paragraph 50 "final authority models", again considered the cutting margin model, paragraph 51

goes on to recite the generation of NC programs based on the final authority model. Based on all

this supporting language, Richey, discloses NC data is generated based upon a comparison. It is

the Examiners position that each element is taught by the reference. The authority model reads

on the solid model data, the actual model reads on the measured work geometry model and the

optimized model or final authority model reads on the cutting margin model, used to generate

NC data. Rejection is maintained.

Applicant argues that Richey does not teach moving a tool. Reference number 28 is a

robot arm and 26 is a tool. Paragraph 61 describes the machining operation using the arm and a

tool. The Examiner contends that the tool is moved.

Applicant argues that Richey does not teach a model, which is colored, based on load

data. Paragraph 60 discusses graphical illustrations and color components, however it is agreed

that there is no specific color based load data, therefore the rejection of claims 5, 10 and 15 are

withdrawn.

Applicant argues that numerous limitations are not taught by Matsumiya, however it is

only the argument directed to a cutting margin model and NC data generated on the cutting

margin model that is persuasive. While Matsumiya teaches NC data generation, it is not based

upon a cutting margin model, therefore the rejection under Matsumiya is withdrawn.

Disposition of Remaining Claims

17.   Claims 5, 10 and 15 are not rejected on art however, they are also not considered to

contain allowable subject matter. Examiner found numerous references that teach displaying

load data using a color based display. See U.S. Pat 6,826,516 to Ito who teaches a color display

of load data for a building and U.S. Pat 5,317,518 to Fujita et al who teaches plotting color load

data in a numerically controlled machining operation (col. 2 lines 26-41). While an art rejection

has not been presented above, the Examiner considers the limitations of claim 5, 10 and 15 to be

an obvious variation of the rejected base claims.

Conclusion

18.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Edwards et al (U.S. Pat 6,862,560) – teaches a machining simulation method and

apparatus that uses models of raw stock objects and tool operations.

19.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

20.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Paul L. Rodriguez whose telephone number is (571) 272-3753.

The examiner can normally be reached on 6:00 - 4:30 T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul L Rodriguez
Primary Examiner
Art Unit 2125

PLR
8/28/05